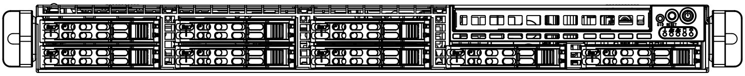
SUPERO®

SC119 Chassis Series



SC119TQ-R700UB

USER'S MANUAL

1.0

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC119 1U chassis. Installation and maintenance should be performed by experienced technicians only.

This manual lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1 Introduction

The first chapter provides a list of the main components included with this chassis and describes the main features of the SC119 chassis. This chapter also includes contact information.

Chapter 2 System Safety

This chapter lists warnings, precautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed before installing and servicing this chassis.

Chapter 3 Chassis Components

Refer here for details on this chassis including the fans, bays, airflow shields, and other components.

Chapter 4 System Interface

This chapter provides details on the system interface, which includes the functions and information of he control panel LEDs and other LEDs located throughout the system.

Chapter 5 Chassis Setup and Maintenance

Refer to this chapter for detailed information on this chassis. You should follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 6 Rack Installation

This chapter covers detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Appendices

These appendices list compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information at http://www.supermicro.com.

Appendix A Chassis Cables
Appendix B Power Supply Specifications
Appendix C SAS-113TQ Backplane Specifications

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Appendix A SC119 Chassis Cables

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Chapter 1

Introduction

1-1 Overview

Supermicro's SC119 1U chassis features a unique and highly-optimized design for 1U, UIO servers. The chassis is equipped with a 700 Watt, redundant high-efficiency (80 PLUS Gold Level Certified) power supply to support high-performance system components and high-speed, heavy-duty counter-rotating fans for ample cooling. The chassis provides maximum features in 1U form factor for high-end, high-performance applications. Only enterprise level SAS or SATA hard drives are recommended for use in the SC119 chassis.

1-2 Shipping List

Visit the Supermicro Web site for the latest shipping lists and part numbers for your particular chassis model at www.supermicro.com.

SC119 Chassis				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC119TQ-R700UB	DP	8x SAS/SATA	2x FH, 1x LP	700W (Gold Level)

DP: Dual Processor Support

FH: Full-height card

LP: Low-profile card

1-3 Chassis Features

The SC119 1U high-performance chassis includes the following features:

CPU

The SC119 chassis supports a dual CPU. Please refer to the motherboard specification pages on our Web site for updates on supported processors.

Hard Drives

The SC119 chassis features eight hard drive bays for 2.5" hot-swappable SAS/ SATA drives. Once setup correctly, these drives can be removed without powering-down the server.

I/O Expansion Slots

The SC119 chassis includes either one full-height PCI slot or two full-height PCI slots and one low-profile PCI slot. See the chart on the previous page for your specific chassis model.

Peripheral Drives

Each SC119 chassis supports one slim DVD-ROM drive (optional). This drive allows data to be quickly installed or saved.

Other Features

Other onboard features are included to promote system health. These include five or six cooling fans, a convenient power switch, reset button, and five LED indicators.

1-4 Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Web Site: www.supermicro.com

Europe

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands
Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Asia-Pacific

Address: Super Micro Computer, Inc.
4F, No. 232-1, Liancheng Rd.
Chung-Ho 235, Taipei County
Taiwan, R.O.C.
Tel: +886-(2) 8226-5990
Fax: +886-(2) 8226-3991
Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: +886-(2)-8226-5990

1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 2

System Safety

2-1 Overview

This chapter provides a quick setup to get your chassis up and running. Following the steps in the order given should enable you to have your chassis set up and operational within a minimal amount of time. This quick setup assumes that you are an experienced technician, famailiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

The system must be placed near at least one grounded power outlet. When configured, the SC119 chassis includes two redundant power supplies and requires two grounded outlets.

2-3 Preparing for Setup

The SC119 chassis includes a set of rail assemblies, including mounting brackets and the mounting screws you will need to install the systems into the rack. Please read this manual in its entirety before you begin the installation procedure.

2-4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC119 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high-voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM and floppy drives (not necessary for hot-swappable drives). When disconnecting power, you should first power-down the system with the operating system and then unplug the power cords from all the power supply modules.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- DVD-ROM laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge, even if you are wearing a wrist strap.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3

Chassis Components

3-1 Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2 Components

Chassis

The chassis includes eight 2.5" hard drive bays, and one slim DVD-ROM drive. (On some chassis models, the DVD-ROM is an optional item). For the latest shipping lists, visit our Web site at: http://www.supermicro.com.

This chassis accepts a 1U backplane, five fans (with an optional sixth fan) and two power supplies. SC119 models come in black.

Backplane

Each SC119 chassis comes with a 1U SAS/SATA backplane. For more information regarding compatible backplanes, view the appendices found at the end of this manual. In addition, visit our Web site for the latest information: http://www.supermicro.com.

Fans

The SC119 chassis accepts five system fans and provides space for one additional fan if required. System fans for the SC119 chassis are powered from the serverboard. These fans are 1U high and have 4-pin connectors.

Mounting Rails

The SC119 can be placed in a rack for secure storage and use. To setup your rack, follow the step-by-step instructions included in this manual.

Power Supply

Each SC119 chassis model includes redundant high-efficiency power supplies rated at 700 Watts. In the unlikely event of a power supply failure, the hot-swappable power supply can be replaced without powering-down the system.

Air Shroud

Air shrouds are shields, usually plastic, that channel air directly to where it is needed. Always use the air shroud included with your chassis.

3-3 Where to get Replacement Components

Although not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list of Supermicro Authorized Distributors/System Integrators/Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4

System Interface

4-1 Overview

There are LEDs on the control panel and on the drive carriers that provide system and component status. This chapter explains the meanings of these LED indicators and the appropriate responses that need to be taken.

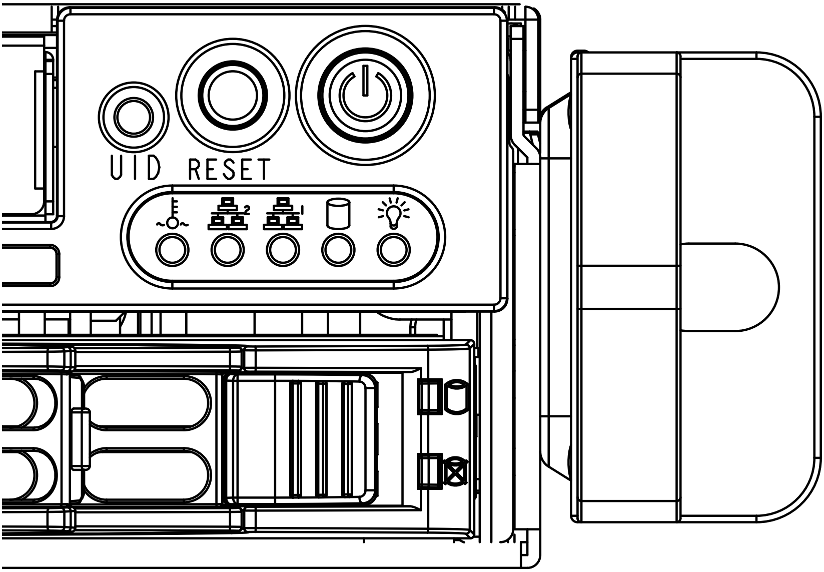
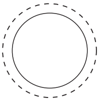


Figure 4-1: Control Panel Buttons and LEDs

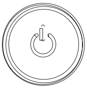
4-2 Control Panel Buttons

The SC119 chassis includes three push-buttons located on the front panel: a reset button, a power on/off button, and a UID button

- UID: When used with a UID-compatible motherboard, the UID button is used to turn on or off the blue light function of the the U-LED. Once the blue light is activated, the unit can be easily located in large racks and server banks.



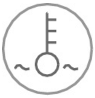
- Reset: The reset button is used to reboot the system.



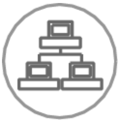
- Power: The main power switch is used to apply or remove power from the power supply to the server system. Turning off the system power with this button removes the main power, but keeps standby power supplied to the system. therefore, you must unplug system before servicing.

4-3 Control Panel LEDs

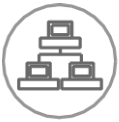
The control panel located on the front of the SC119 chassis has five LEDs. These LEDs provide critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any action that may be required.



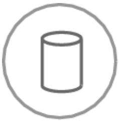
- Overheat/Fan Fail: When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm.



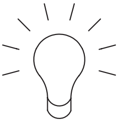
- NIC2: Indicates network activity on GLAN2 when flashing.



- NIC1: Indicates network activity on GLAN1 when flashing.



- HDD: Indicates IDE channel activity. SAS/SATA drive, SCSI drive, and/or DVD-ROM drive activity when flashing.



- Power: Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

4-4 Drive Carrier LEDs

The SC119 chassis uses SAS/SATA hard drives.

SAS/SATA Drives

Each SAS/SATA drive carrier has two LEDs.

- Green: Each Serial ATA drive carrier has a green LED. When illuminated, this green LED (on the front of the SATA drive carrier) indicates drive activity. A connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.

- Red: The red LED to indicate an SAS/SATA drive failure. If one of the SAS/SATA drives fail, you should be notified by your system management software.

4-5 Power Supply LEDs

The SC119 chassis includes redundant power supplies which are hot-swappable, allowing for the power supply to be changed without powering-down the system. The power supply has an LED on the rear with the following definitions:

700 Watt Power Supply

700W Power Supply LEDs	
State	**Indication**
Solid Green	**System is on.**
Solid Amber	**System is off and plugged in or 5V stand by on.**
Blinking Amber **(Only for 700W)**	**Power supply internal temperature** **has reached 63°** Celsius**, and will be shut down if the temperature reaches** **70°** Celsius**.**

- Solid Green: When illuminated, the green LED indicates that the power supply is on.

- Solid Amber: When illuminated, the amber LED indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.

Chapter 5

Chassis Setup and Maintenance

5-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool needed to install components and perform maintenance is a Phillips screwdriver.

5-2 Installation and Maintenance Procedures

Installation

Removing the Chassis Cover and Front Bezel

Installing Hard Drives

DVD-ROM Installation

Backplane Installation

Installing the Motherboard (includes standoff installation and expansion card setup)

Installing the Air Shroud and Checking the Airflow

General Maintenance

General Maintenance: Systems Fans

General Maintenance: Replacing the Power Supply

⚠ **Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.**

5-3 Removing the Chassis Cover and Front Bezel

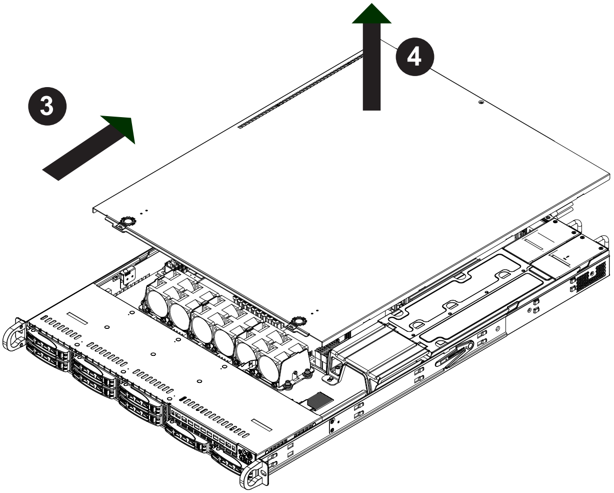


Figure 5-1: Removing the Chassis Cover

Removing the Chassis Cover:

1. Disconnect the chassis from any power source.
2. Remove the screws securing the top cover to the chassis.
3. Slide the cover toward the rear of the chassis.
4. Lift the cover up and off the chassis.

⚠ **Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.**

5-4 Installing Hard Drives

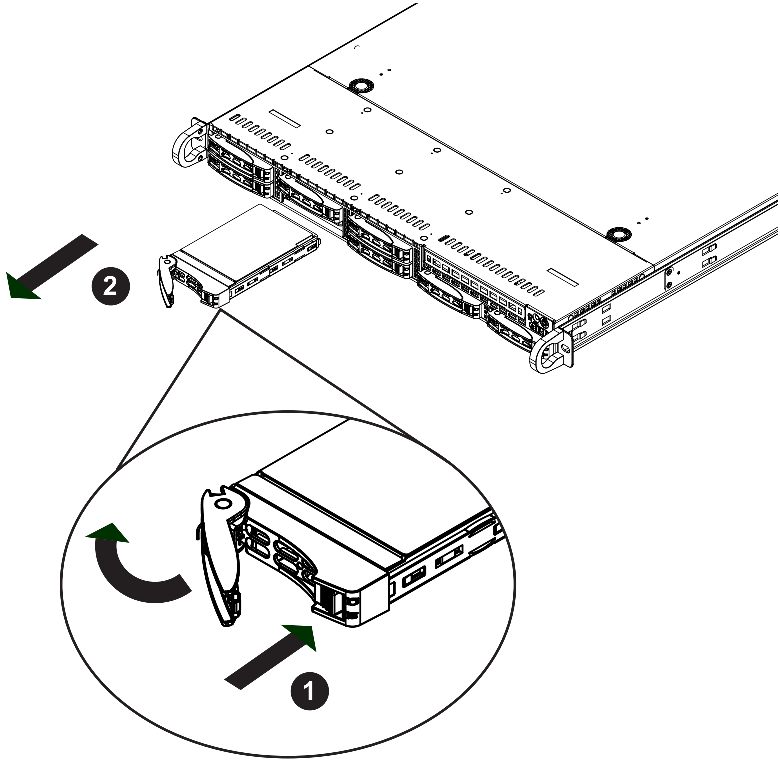


Figure 5-2: Removing a Hard Drive

The SC119 chassis supports eight hot-swappable hard drives, so it is not necessary to power-down the server when replacing hard drives. Only enterprise level SAS or SATA hard drives are recommended for use in Supermicro chassis.

Removing Hard Drive Carriers from the Chassis

1. Press the release button on the drive carrier. This extends the drive carrier handle.

2. Use the handle to pull the drive out of the chassis.

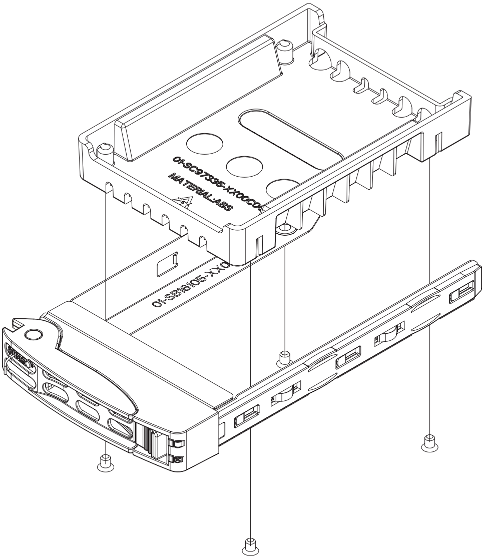


Figure 5-3: Hard Drive Carrier

Installing a Hard Drive into a Drive Carrier

1. Remove the dummy drive which comes pre-installed in the drive carrier, by removing the screws securing the dummy drive to the carrier.

2. Insert a hard drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.

3. Align the drive in the carrier so that the mounting holes of the carrier align with those in the hard drive.

4. Secure the drive to the carrier with four M3 screws as illustrated below. These screws are included in the chassis accessory box.

5. Insert the drive carrier into an empty drive bay, keeping the carrier oriented so that the hard drive is on the top of the carrier and the release button is on the right side. When the carrier reaches the rear of the bay, the release handle will retract.

6. Push the handle in until it clicks into the locked position.

Warning: Except for short periods of time (swapping hard drives), do not operate the server with the hard drives empty.

5-5 DVD-ROM Drive Installation

The SC119 chassis models support an optional DVD-ROM.

Installing or Replacing a DVD-ROM Drive

1. Power-down the system and if necessary, remove the server from the rack and the front bezel from the chassis.

2. Remove the chassis cover.

3. Unplug the drive's power and data cables from the motherboard and/or backplane.

4. **If installing a DVD-ROM for the first time:** Unlock the mini-bezel lock scew and remove the mini-bezel (grate) from the drive bay The bezel can be removed by pulling out the hard drive beneath the DVD-ROM, then pulling the mini-bezel forward. When installing or removing a DVD-ROM drive, the mini-bezel lock screw must be removed and the drive tray must be completely seperated from the chassis.
   If replacing an existing DVD-ROM: Pull the DVD-ROM drive tray from the front of the chassis.

5. Remove the DVD-ROM from the drive tray by removing the drive screws, then secure the replacement DVD-ROM into the drive tray, using the drive screws.

6. Reattach the drive tray to the chassis by replacing the mini-bezel lock screw, and tightening it from inside the chassis.

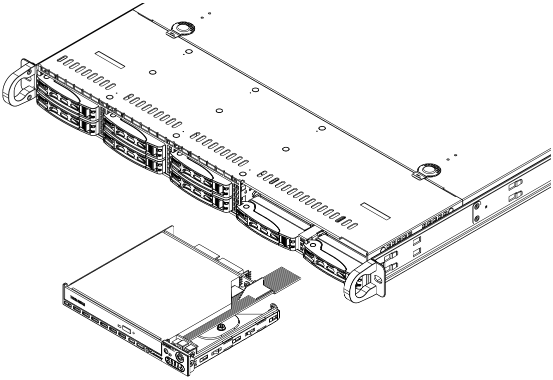


Figure 5-4: Installing the DVD-ROM Drive

7. Reconnect the data and power cables.
8. Replace the chassis cover (replace the server in the rack, if necessary) and power up the system.

5-6 Removing the Backplane

The SC119 chassis backplane is located behind the hard drives and in front of the front system fans. In order to change jumper settings on the backplane, it may be necessary to remove the backplane from the chassis.

Removing the Backplane from the Chassis

1. Disconnect the chassis from any power source.
2. Disconnect the cabling to the backplane.
3. Remove the five upper screws at the top of the backplane, indicated by the arrows below.
4. Lift the backplane up and out of the chassis.

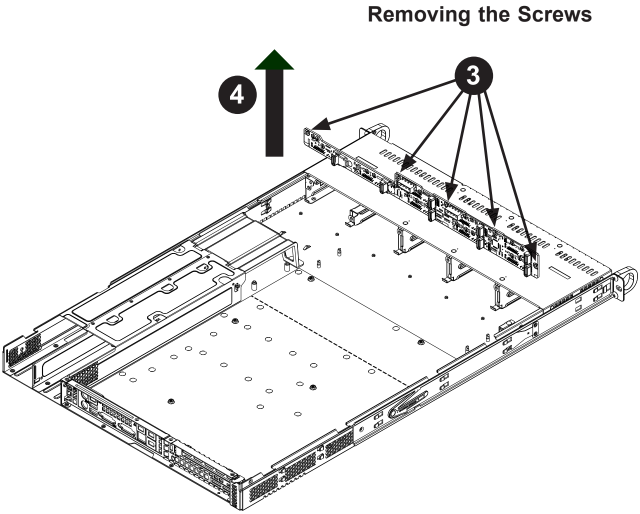


Figure 5-5: Installing the Backplane

5-7 Backplane Installation

Installing the Backplane

1. Slide the backplane into the chassis as shown, inserting the lower edge of the backplane into the clips on the floor of the chassis.

2. Align the mounting holes in the backplane with the mounting holes in the chassis.

3. Secure the backplane to the chassis using the five screws provided with the backplane.

4. Connect the wiring to the backplane.

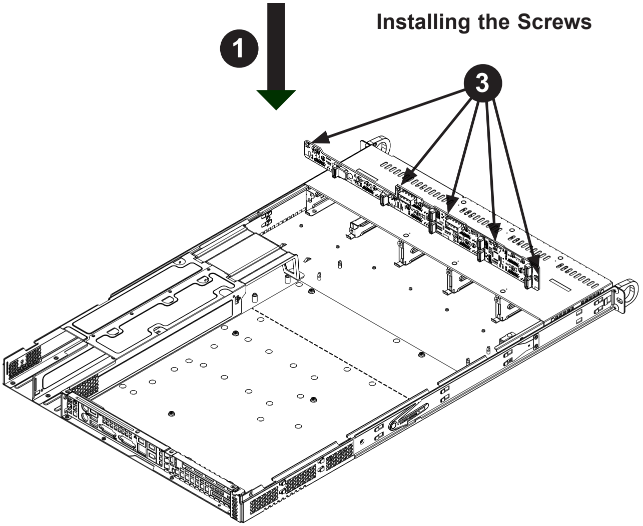


Figure 5-6: Installing the Backplane

5-8 Installing the Motherboard

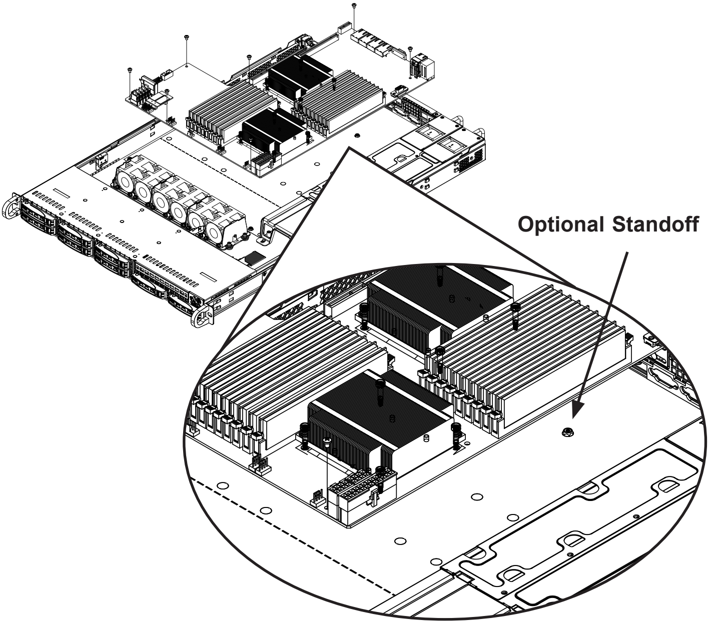


Figure 5-7: Chassis Standoffs

Permanent and Optional Standoffs

Standoffs prevent short circuits by creating space between the motherboard and the chassis surface. The SC119 chassis includes permanent standoffs in locations used by most motherboards. These standoffs accept the rounded Phillips head screws included in the SC119 accessories packaging.

Some motherboards require additional screws to secure heatsinks, general components and/or non-standard components. Optional standoffs are included for these motherboards. To use an optional standoff, you must place the hexagonal screw through the bottom the chassis and secure the screw with the hexagon nut (rounded side up).

Motherboard Installation

Installing the Motherboard

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Disconnect the chassis from any power source and lay it on a flat surface.

3. Open the chassis cover.

4. If necessary, remove the riser card. To do this, remove the two screws holding the card in place and lift the card from the chassis.

5. Compare the mounting holes in the motherboard to those in the chassis. Add or remove the removable standoffs as needed. To do this:
   A. Place a hexagonal standoff screw through the bottom the chassis.
   B. Secure the screw with the hexagon nut (rounded side up).

6. Lay the motherboard on the chassis aligning the permanent and optional standoffs.

7. Secure the motherboard to the chassis using the rounded, Phillips head screws. Do not exceed eight pounds of torque when tightening the motherboard.

8. Secure the CPU(s), heatsinks, and other components to the motherboard, as needed.

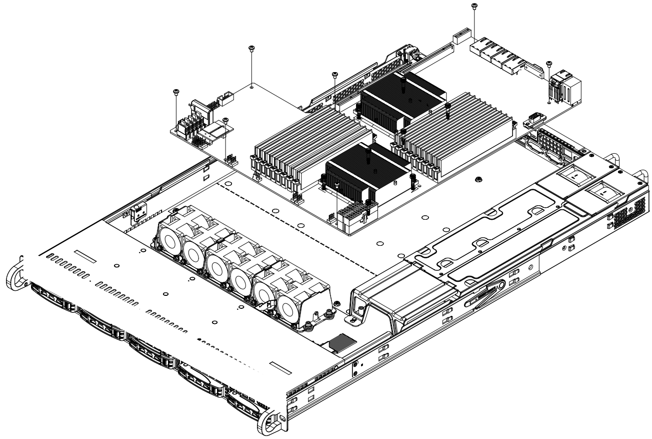


Figure 5-8: Securing the Motherboard to the Chassis

Expansion Card Setup

SC119 chassis includes I/O slots for expansion cards. The SC119-R700UB is a "U" model chassis which includes one low-profile and two full-height PCI slots for expansion cards.

Note: A riser card must be used to install expansion cards into any SC119 chassis. Riser cards are sold separately.

For the latest compatibility and performance information, visit our website at: http://www.supermicro.com.

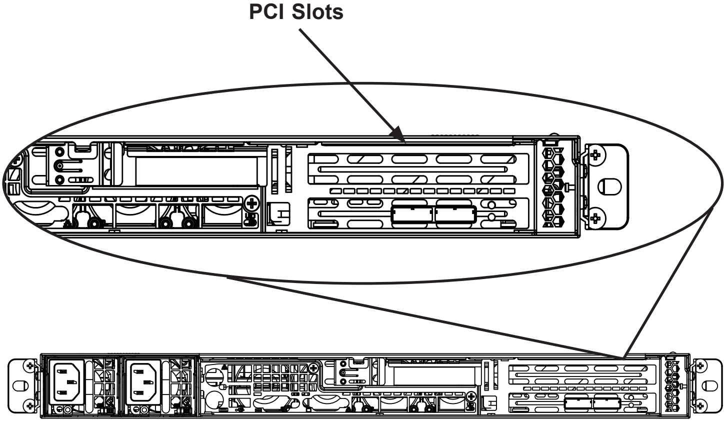


**Figure 5-9: SC119 Chassis Rear
with Two Full-Height/Full-Length PCI Slots
and One Low-Profile PCI Slot**

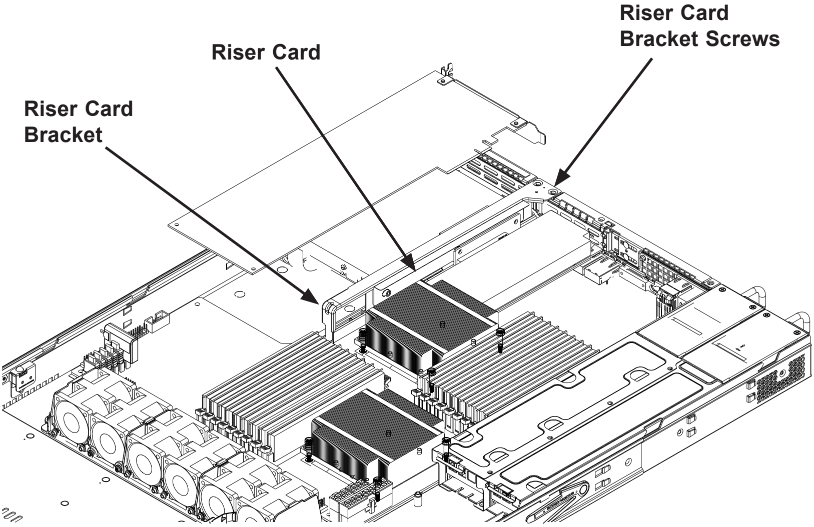


Figure 5-10: Chassis with a Riser Card

Installing Expansion and Riser Cards

1. Confirm that you have the correct riser card for your chassis model and the expansion card includes a standard bracket.

2. Remove the chassis cover.

3. Install the riser card onto the riser card bracket. Insert the card and bracket into the appropriate slot on the motherboard. Secure the riser bracket to the chassis using screws as illustrated.

4. Choose the PCI slot in which to place the expansion card.

5. In that slot, open the PCI slot lever and slide the PCI slot cover sideways.

6. From inside the chassis, remove the PCI slot cover.

7. Slide the expansion card into the riser card.

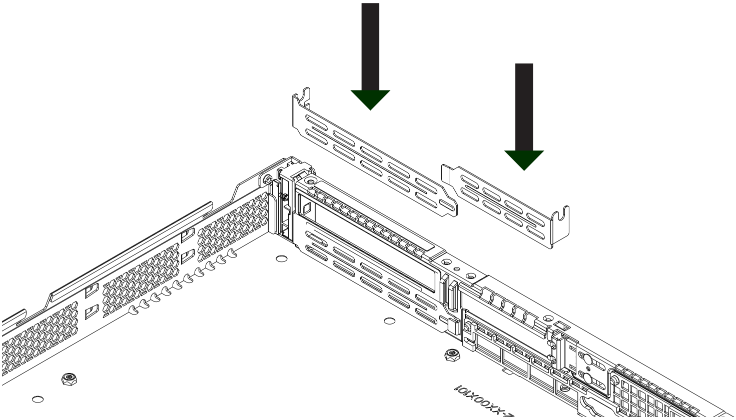


Figure 5-11: Add-On Card Bracket Installation

8. Attach the expansion card bracket in place of the I/O panel.

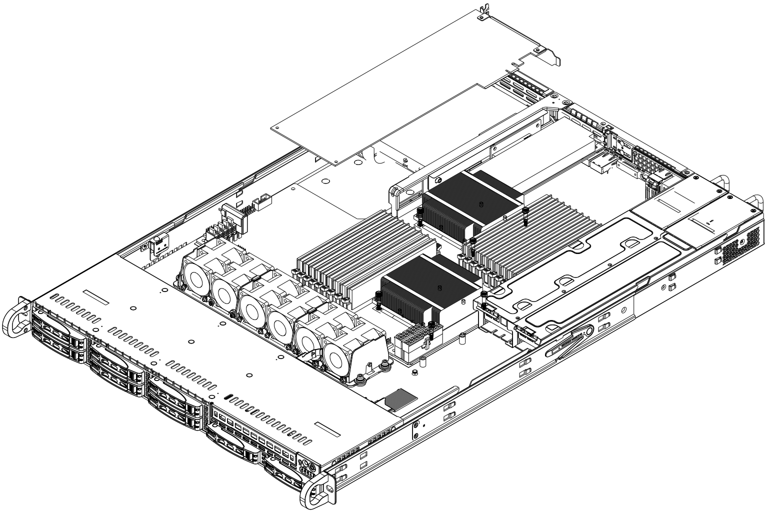


Figure 5-12: Add-On Card Installation

9. Secure the expansion card by closing the PCI slot lever.

10. Connect cables to the expansion card if necessary.

5-9 Installing the Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. The SC119 chassis air shroud does not require screws to set up.

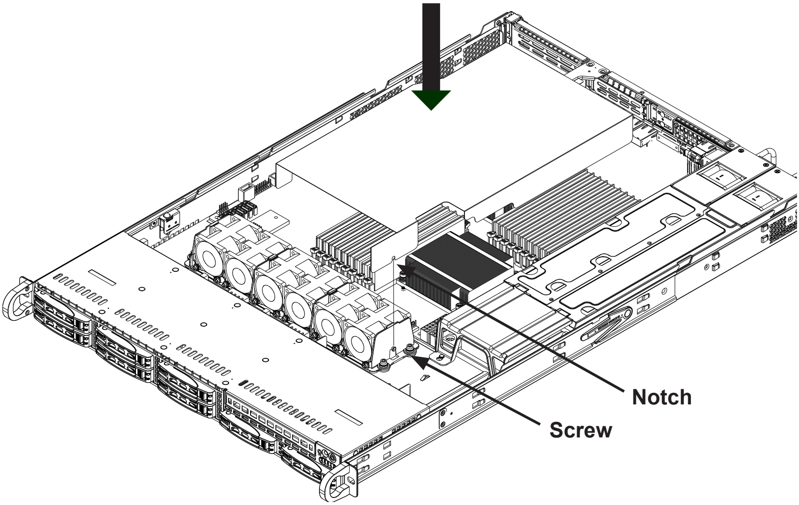


Figure 5-13: Air Shroud Installation

Air Shroud Installation

1. Disconnect the chassis from any power source.

2. Align the notch on the air shroud with the screw on the side of the fan tray.

3. Lower the air shroud into position, sliding the notch over the screw on the side of the fan tray.

Checking the Air Flow

Check the Airflow

1. Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.

2. Do not operate the server without drives or drive carriers in the drive bays. Use only recommended server parts.

3. Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

4. The control panel LEDs inform you of system status, including system temperature. See “Chapter 3: System Interface” for details on the control panel LEDs.

5-10 System Fans

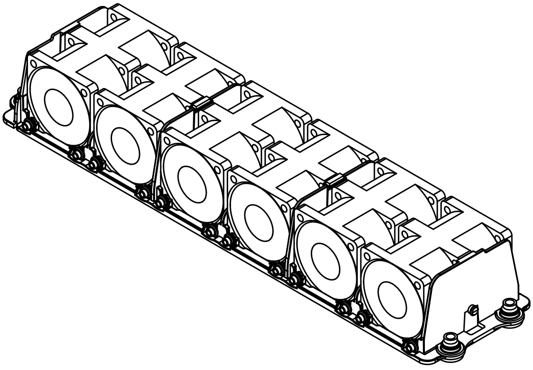


Figure 5-14: System Fans in the Fan Tray (Optional Sixth Fan Shown in Illustration)

Five heavy-duty fans provide cooling for the chassis. These fans circulate air through the chassis as a means of lowering the chassis' internal temperature.

The SC119 chassis contains counter-rotating fans. Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counter-rotating action generates exceptional airflow and works to dampen vibration levels.

The SC119 chassis provides an additional open space in the fan housing, where one additional optional system fan may be added for optimal cooling.

Adding a System Fan

1. Turn off the power to the system and unplug the system from the outlet.

2. Remove the dummy fan from the fan tray.

3. Place the new fan into the vacant space in the tray while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

4. Connect the fan wires to the fan headers on the serverboard.

5. Power up the system and check that the fan is working properly before replacing the chassis cover.

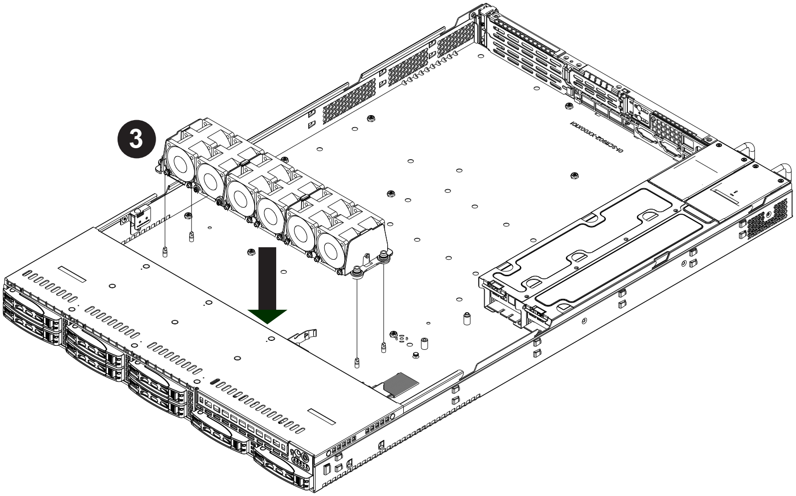


Figure 5-15: Chassis Fans

Replacing a System Fan

1. If necessary, open the chassis while the power is running to determine which fan has failed. Never run the server for an extended period of time with the chassis open.

2. Turn off the power to the system and disconnect the chassis from any power source.

3. Unscrew the two screws securing the fan tray to the floor of the chassis.

4. Remove the failed fan's power cord from the serverboard.

5. Push upward on the bottom of the fan to remove it from the fan tray.

6. Place the new fan into the vacant space in the tray while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

7. Reconnect the fan wires to the exact same chassis fan headers as the previous fan.

8. Power-up the system and check that the fan is working properly before replacing the chassis cover.

5-11 Power Supply

The SC119 chassis includes redundant 700W power supplies. These power supplies are auto-switching capable. The power supply automatically senses and operates at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. Agreen light indicates that the power supply is operating.

Power Supply Failure

In the unlikely event that one of the power supplies fails, the redundant power supply will take over. Replacing the power supply is simple and requires no tools.

Replacing the Power Supply

1. Push the release button on the corner of the failed power supply.
2. Pull the power supply out using the handle.
3. Replace the power supply with another of the same model and push it into the chassis until it clicks into the locked position.

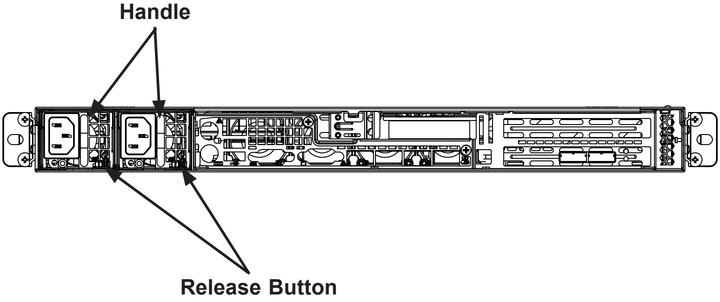


Figure 5-16: Replacing the Power Supplies

Notes

Chapter 6

Rack Installation

6-1 Overview

This chapter provides a quick setup to install the chassis into a rack. Following these steps in the order given should enable you to have the system installed within a minimal amount of time.

6-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need to place the system near a grounded power outlet. Be sure to read the Warnings and Precautions in the next section.

6-3 Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot-swappable hard drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit, such as power strips and other devices.

6-4 Rack Mounting Instructions

This section provides information on installing the SC119 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will vary slightly. Refer to the installation instructions that came with the rack unit.

NOTE: This rail will fit a rack between 26" and 33.5" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of two sections: An inner rail that secures directly to the chassis and an outer rail that secures directly to the rack.

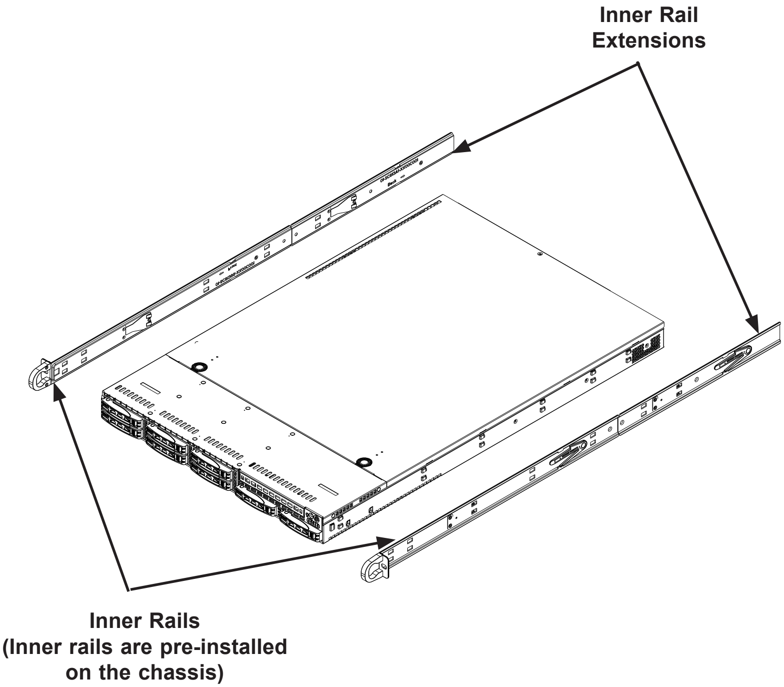

Inner Rail Extensions
Inner Rails
(Inner rails are pre-installed on the chassis)

Figure 6-1: Identifying the Inner Rails and Inner Rail Extensions

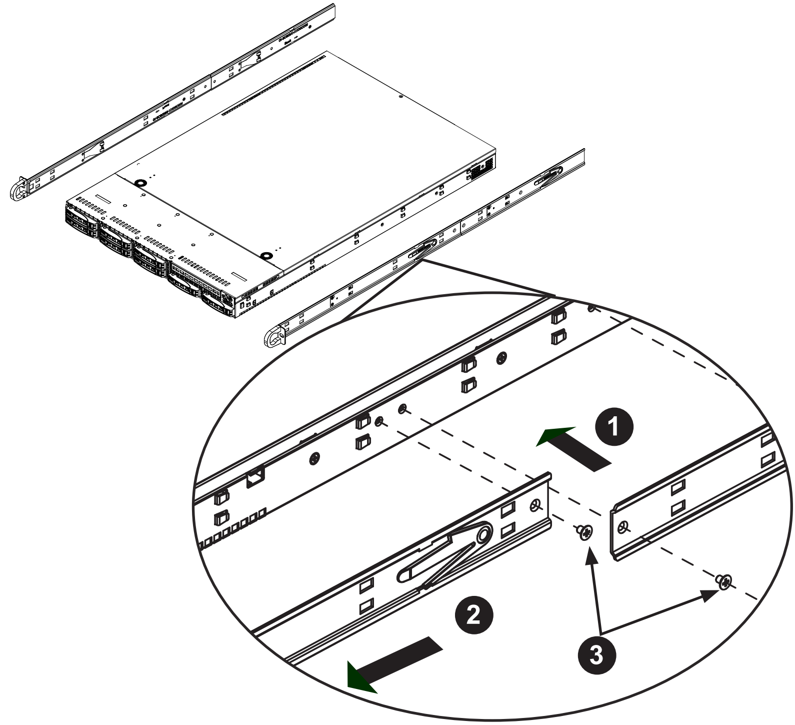


Figure 6-2: Identifying the Sections of the Rack Rails
(right side rail shown)

Inner Rail Extension

The SC119 chassis includes a set of inner rails in two sections: Inner rails and inner rail extensions. The inner rails are pre-attached and do not interfere with normal use of the chassis if you decide not to use a server rack. Attach the inner rail extension to stabilize the chassis within the rack.

Installing the Inner Rail Extensions

1. Place the inner rail extensions on the side of the chassis aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the pre-attached inner rail.
2. Slide the extension toward the front of the chassis.
3. Secure the chassis with 2 screws as illustrated.
4. Repeat steps 1-3 for the other inner rail extension.

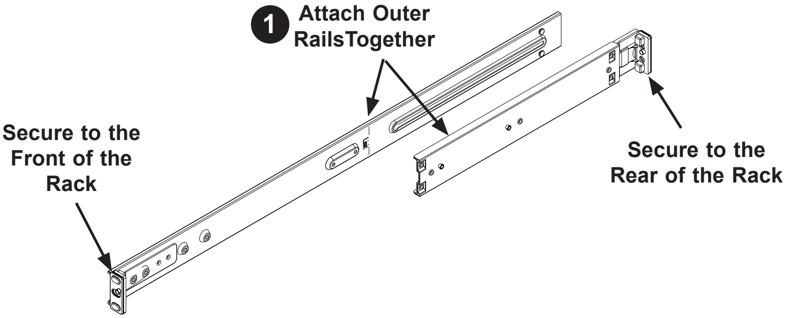

1
Attach Outer RailsTogether
Secure to the Front of the Rack
Secure to the Rear of the Rack

Figure 6-3: Assembling the Outer Rails

Outer Rails

Installing the Outer Rails to the Rack

1. Attach the shorter outer rail to the outside of the longer outer rail. You must align the pins with the slides. Both bracket ends must face the same direction.

2. Adjust the outer rails so that they fit snugly within the rack.

3. Secure the longer outer rail to the front of the rack with two screws

4. Secure the shorter outer rail to the rear rack with three screws.

5. Repeat steps 1-4 for the remaining outer rail.

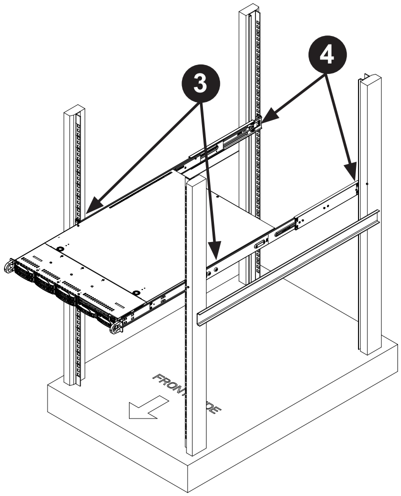

4
3
FRONT SIDE

Figure 6-4: Installing the Outer Rails to the Server Rack

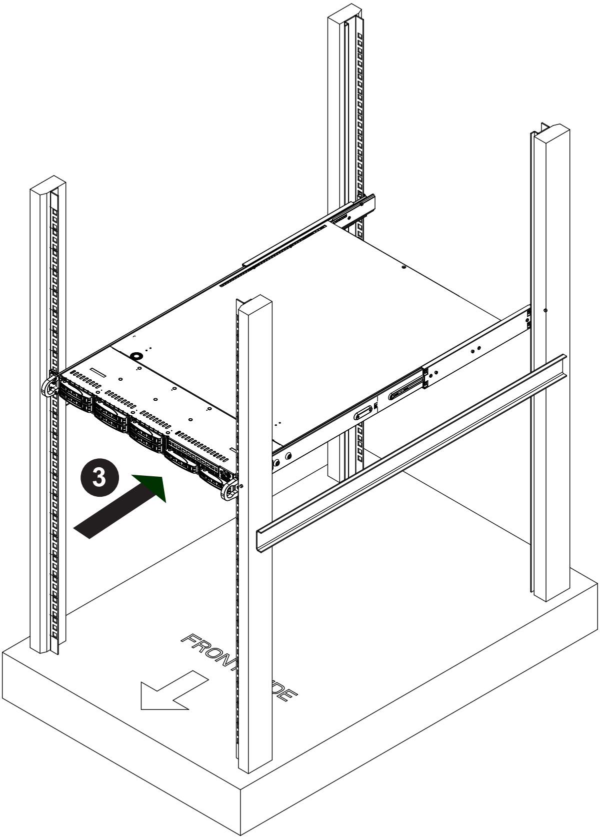


Figure 6-5: Installing the Rack Rails

Installing the Chassis into a Rack

1. Confirm that chassis includes the inner rails and rail extensions, and confirm that the outer rails are installed on the rack.

2. Align the inner rails on the chassis with the front of the outer rails on the rack.

3. Slide the inner rails into the outer rails, keeping the pressure even on both sides (it may be necessary to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs click into the locked position.

4. (Optional) Insert and tighten the thumbscrews that hold the front of the chassis to the rack.

Installing the Chassis into a Telco rack

To install the chassis into a Telco type rack, use two L-shaped brackets on either side of the chassis (four total). First, determine how far follow the server will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it. Then attach the two front brackets to each side of the chassis, then the two rear brackets positioned with just enough space to accommodate the width of the Telco rack. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

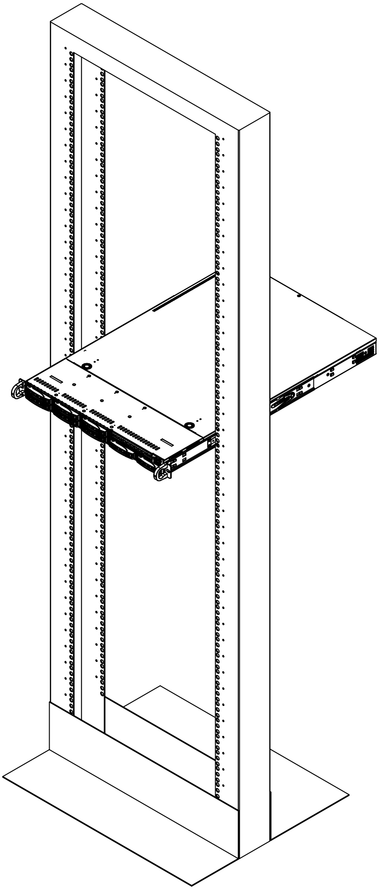


Figure 6-6: Installing the Server into a Telco Rack

Appendix A

SC119 Chassis Cables

A-1 Overview

This appendix lists supported cables for your system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC119 Chassis (SAS/SATA)

SC119-R700UB			
Part #	**Type**	**Length**	**Description**
CBL-0227L	Round ribbon cable	48 cm	SATA round S-RA PBF
CBL-0157L	Round ribbon cable	40 cm	8-pin to 8-pin ribbon cable for SGPIO (supports up to 4 drives)
CBL-0335L	Round ribbon cable	70 cm	Front control panel cable, 20-pin to 20-pin with tube.
CBL-0206L	SATA cable	48 cm	48 cm SATA round S-S PBF

A-3 Compatible Cables

These cables are compatible with the SC119 chassis.

This section lists cables included with the SC119 chassis packages.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32-pin) connector on one end and four SAS connectors (seven pins each) at the other. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one iPass (SFF-8087/Mini-SAS) connector (36-pin) at one end and four SAS connectors on the other end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the motherboards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24-pin	CBL-0042	7.9” (20 cm)
20-pin	CBL-0059	7.9” (20 cm)
8-pin	CBL-0062	7.9” (20 cm)
4-pin	CBL-0060	7.9” (20 cm)

Front Panel to the Motherboard

The SC119 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard)**	**Cable Part #**
16-pin	16-pin	CBL-0049
16-pin	20-pin	CBL-048
20-pin	20-pin	CBL-0047
16-pin	Split*	CBL-0068
20-pin	Split*	CBL-0067

* Split cables: Use these cables if your motherboard has different pin definitions than a Supermicro motherboard.

Notes

Appendix B

SC119 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

SC119TQ-R700UB	
	700W (80 PLUS Gold Certified)
MFR Part #	PWS-704P-1R
AC Voltage	700W: 100 - 140 V, 50-60 Hz, 8.5 - 6 Amps 750W: 180 - 240 V, 60-50 Hz, 5 - 3.8 Amps
DC Output +5V standby	3 Amps
DC Output +12V	700W: 58 Amps at 100-140V 750W: 62 Amps at 180-240V
With Power Distributor	+5V: 25 Amps +3.3V: 25 Amps -12V: 0.6 Amps

Notes

Appendix C

SAS-113TQ Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the SAS-113TQ backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the SAS-113TQ backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest backplane revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4 Introduction to the SAS-113TQ Backplane

The SAS-113TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-113TQ Revision 1.02, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Connectors, Jumpers and LEDs

C-5 Front Connectors

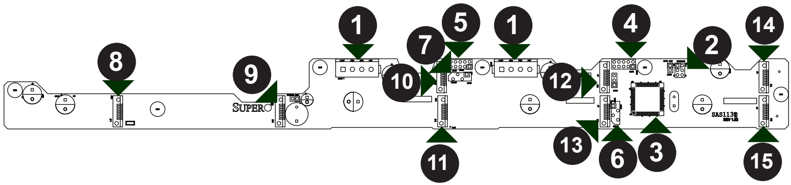


Figure C-1: Front Connectors

Front Connectors and Jumpers

1. Power Connectors (4-pin): JP10, JP13
2. Upgrade Connector: JP46
3. MG9072 Chip
4. Sideband #1: JP51
5. Sideband #2: JP52
6. I^{2}C Connector #1: JP44
7. I^{2}C Connector #2: JP45
8. Connector #7: J16
9. Connector #6: J14
10. Connector #5: J12
11. Connector #4: J10
12. Connector #3: J8
13. Connector #2: J7
14. Connector #1: J6
15. Connector #0: J5

C-6 Front Connector and Pin Definitions

#1. Backplane Main Power Connectors

The 4-pin connectors designated JP10, provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

#2 Upgrade Connector

The upgrade connector, designated JP46 is for diagnostic purposes only. This connector should only be used by a certified and experienced technician.

#3. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

#4 and #5. Sideband Connectors

The sideband connectors are designated JP51 and JP52. For SES-2 to work properly, you must connect an 8-pin sideband cable. See the table to the right for pin definitions.

Sideband Connectors

Pin #	Definition	Pin #	Definition
2	SDIN/ Backplane Addressing (SB5)	1	Controller ID (SB6)
4	SDOUT/I^{2}C Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	SLOAD/ SDA (SB1)
8	Backplane ID (SB7)	7	SCLOCK/ SCL (SB0)
10	No Connection	9	No Connection

#6 and #7. I²C Connectors

The I²C connectors, designated JP44 and JP45, are used to monitor HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

#8 - #15. SAS/SATA Connectors

The SAS/SATA connectors are numbered 0 through 7. Each may be connected to the system with a SAS or SATA cable.

C-7 Front Jumper Locations and Settings

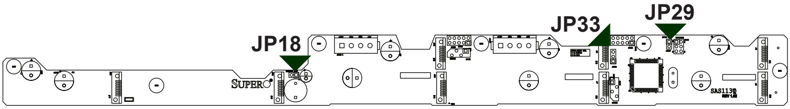
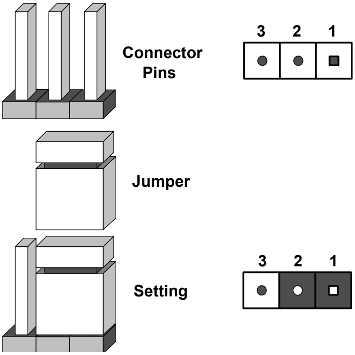


Figure C-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open: Default Closed: Reset	Buzzer reset*
JP29	Open: Default Closed: Reset	MG9072 chip reset

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure

2. System temperature over 45º Celsius.

I^{2}C and SGPIO Modes and Jumper Settings

This backplane can utilize I^{2}C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use I^{2}C mode or restore your backplane to SGPIO mode.

I^{2}C and SGPIO Settings			
Jumper	**I^{2}C Jumper Setting**	**SGPIO Jumper Setting (Default)**	**Note**
JP33	2-3	1-2	Controller ID

Front LED Indicators

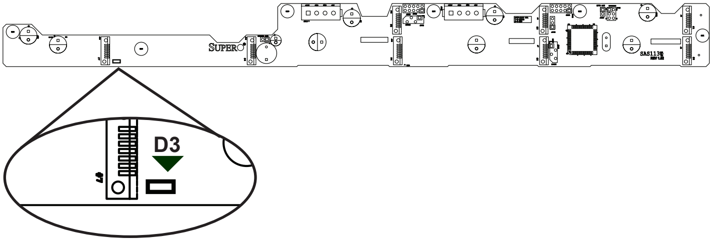


Figure C-3: Front LEDs

Front Panel LEDs		
LED	**State**	**Specification**
D3	On	Overheat or Drive Failure

2-4 Rear Connectors and LED Indicators

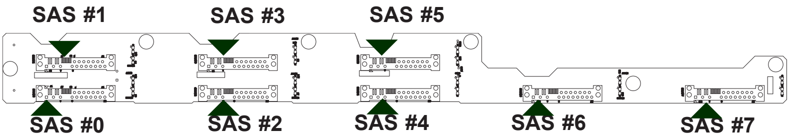

SAS #1
SAS #3
SAS #5
SAS #0
SAS #2
SAS #4
SAS #6
SAS #7

Figure C-4: Rear Connectors

Rear SAS/SATA Connectors		
Rear Connector	**Connector Number**	**SAS/SATA Drive Number**
SAS #0	J1	SAS/SATA HDD #0
SAS #1	J2	SAS/SATA HDD #1
SAS #2	J3	SAS/SATA HDD #2
SAS #3	J4	SAS/SATA HDD #3
SAS #4	J9	SAS/SATA HDD #4
SAS #5	J11	SAS/SATA HDD #5
SAS #6	J13	SAS/SATA HDD #6
SAS #7	J15	SAS/SATA HDD #7

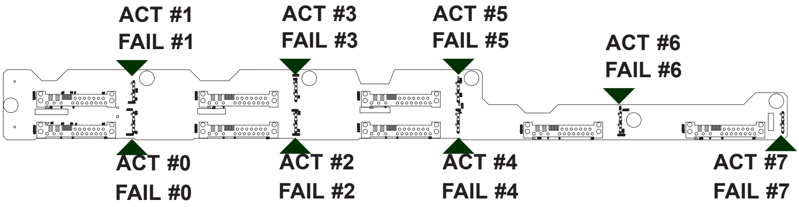

ACT #1
FAIL #1
ACT #3
FAIL #3
ACT #5
FAIL #5
ACT #6
FAIL #6
ACT #0
FAIL #0
ACT #2
FAIL #2
ACT #4
FAIL #4
ACT #7
FAIL #7

Figure C-5: Rear LEDs

Rear LED Indicators		
Rear Connector	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19
SAS #5	D21	D20
SAS #6	D22	D23
SAS #7	D25	D26

Notes

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